

## AMPLIFIER HAVING MOS CAPACITOR COMPENSATION

### ABSTRACT OF THE DISCLOSURE

5           An amplifier includes a transistor, a current source, a MOS capacitor, and a level shifting module. The transistor includes a gate, a drain, and a source, wherein the source of the transistor is operably coupled to a voltage node. The current source is operably coupled to provide a current to the drain of the transistor. The Metal Oxide Semiconductor (MOS) capacitor includes a gate, a drain, a source, and a well, wherein  
10   the drain, the well, and the source of the MOS capacitor are coupled together to form a first plate of the MOS capacitor and the gate of the MOS capacitor provides a second plate of the MOS capacitor, wherein the second plate of the MOS capacitor is operably coupled to the gate of the transistor, wherein the drain of the transistor provides an output for the amplifier and the gate of the transistor provides an input of the amplifier. The  
15   level shifting module is operably coupled to the first plate of the MOS capacitor such that the level shifting module shifts a gate-source voltage of the MOS capacitor to reduce variances of capacitance of the MOS capacitor such that bandwidth of the amplifier is limited and the amplifier is stable.